REMARKS

I. STATUS OF THE CLAIMS

Claims **1-30** have been previously cancelled. Claims **35-36** are presently cancelled. Claims **31-34** and **37-39** are currently pending. Also, claim **31** has been amended to incorporate the language of claim **35**. No new matter is introduced.

II. REJECTION UNDER 35 U.S.C. §112

Claims **31-36** and **38-39** are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to provide antecedent basis for the phrase "said respective electrodes" recited in claim **31** which recites the plural form "electrodes" instead of its singular form "electrode" as indicated at page 2 of the Office Action. (Emphasis added.) In view of the cancellation of claims **35-36**, the issue of their rejection is now moot. Thus, Applicants' remarks are made with regard to pending claims **31-34** and **38-39**. Applicants respectfully traverse this rejection for the reasons noted below.

In particular, Applicants respectfully submit that in the Amendment filed on October 4, 2006 (in response to the non-final Office Action mailed May 4, 2006), claim **31** was already properly amended to recite the singular form of the phrase "said respective electrode" as opposed to its plural form "said respective electrodes." (Emphasis added.)

However, because strikeout was applied to the term "electrodes" in the fashion of "electrodes", the strikeout of the letter "**s**" from "electrode**s**" (in the phrase "said respective electrodes") was not readily visible. (Emphasis added.) Nevertheless, claim **31** does, in fact, already recite the singular form "said respective electrode" for which antecedent basis is already provided in the earlier recited phrase "a respective electrode" appearing at line 4 of claim **31**. See claim **31** herein under the heading "**Listing of the Claims**."

Furthermore, claims **32-34** and **38-39** (ultimately depending from base claim **31**) already provide proper antecedent basis for the phrase "said respective electrode" (by virtue of their dependency) for the reasons noted above.

Accordingly, no further amendments in this regard to claims **31-34** and **38-39** are necessary to overcome the asserted lack of antecedent basis rejection under 35 U.S.C. §112, second paragraph.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejection of claims **31-36** and **38-39** under 35 U.S.C. §112, second paragraph, as being indefinite.[1]

III. FIRST REJECTION UNDER 35 U.S.C. § 102(e)

Claims **31-35** are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Pat. No. 7,034,468 to Kim et al. (hereinafter "Kim") for the reasons noted at pages 3-4 of the Office Action. In view of the cancellation of claim **35**, Applicants respectfully traverse this rejection for the reasons noted below with respect to claims **31-34**.

In particular, Applicants respectfully direct the Examiner's attention to claim **31** (lines 8-9 thereof) reciting "the energy is stored in the coil circuit . . . ." (Emphasis added.) Also, Applicants point out that claims **32-34** (ultimately depending from claim **31**) include the same language by virtue of their dependency.

The "energy . . . stored in the coil circuit" refers to "the energy stored as the capacitive load" of the electrodes of the display panel (e.g., PDP) as recited in the rejected claims. (Emphasis added.) Furthermore, "when the energy stored in the capacitive load is discharged, the energy [of the capacitive load discharge] is stored in the coil circuit" also as recited in rejected claim **31**. (Emphasis added.) Also, claim **31** recites that the stored energy is "retained in the coil circuit." The same language is recited in dependent claims **32-34** by virtue of their dependency on base claim **31**.

In that context, Applicants respectfully submit that the Office Action mistakenly asserts/concludes (at page 3 thereof) that Kim discloses a coil "L" (in Fig. 3 of Kim) which stores and retains the stored energy associated with the capacitive load (of PDP[2] 10 of Kim) as noted in further detail below:

---

[1] However, Applicants do appreciate the Examiner's remarks in that when just the letter "s" is being deleted, the entire word should be struck out and replaced with a new form of the same word so that all claim amendments are readily visible.

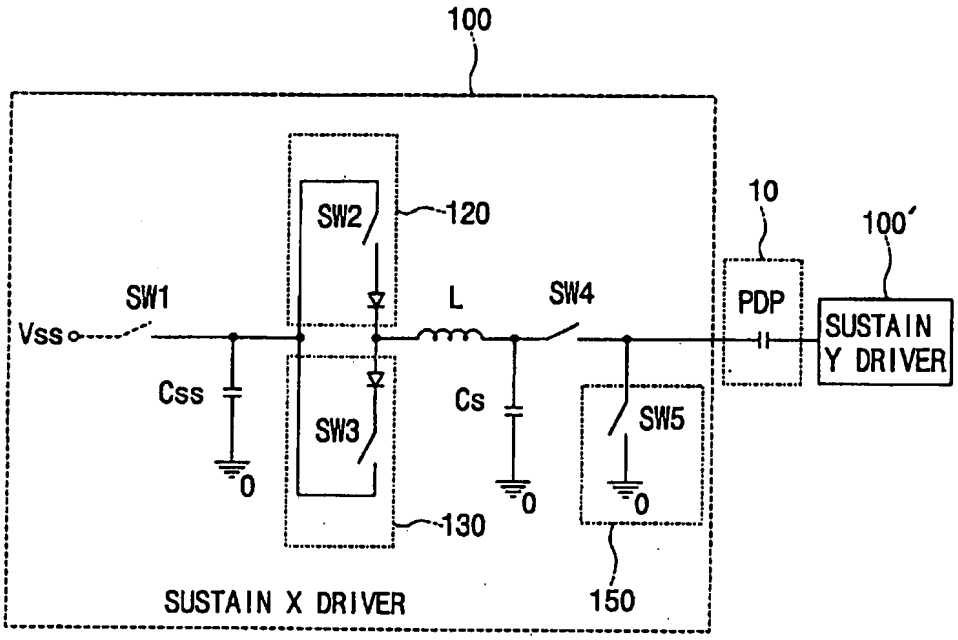
[2] "PDP" refers to plasma display panel.

> With respect to [rejected] claim 31[,] Kim discloses a plasma display apparatus comprising display panel . . . having at least a pair of electrodes making up a capacitive load (10 in FIG. 3) and causing discharge to occur between the pair of electrodes; and a capacitive load drive circuit (100 in FIG. 3) . . . wherein the capacitive load drive circuit has a coil circuit L connected between an output terminal (a node connecting L, Cs and SW4) . . . and a reference potential Vss . . . **so that when the capacitive load is discharged, the energy is stored in the coil circuit [L] . . . . and at the same time retained in the coil circuit [L]** . . . (Office Action at page 3, lines 3-11; emphasis added.)]

Applicants respectfully submit that no logical basis for the foregoing assertion/conclusion (i.e., "wherein the capacitive load drive circuit has a coil circuit L . . . and . . . when the capacitive load is discharged, [that] energy is stored in the coil circuit [L] . . . and . . . retained in the coil circuit [L]") has been provided other than to recite the bare structure of Fig. 3 (of Kim) itself – as will be readily apparent in view of the disclosure relating to Fig. 3 (of Kim) as noted below.

For the Examiner's convenience, Fig. 3 (of Kim) is reproduced:

FIG.3



With regard to Fig. 3 (of Kim), Applicants respectfully direct the Examiner's attention to text (at cols. 3-4, from col. 3, line 62 to col. 4, line 34, of Kim) reciting in relevant part:

> As shown in FIG. 3 [of Kim], a preferred driving circuit 100 of **the present invention** comprises a storage capacitor Css, an intermediate capacitor Cs, a resonance inductor L, a charging part 120, and a switch SW4. [(Emphasis added.)]
>
> The operation of the circuit for charging the panel capacitance is explained in detail below. The storage capacitor Css is a source that supplies charge to the panel capacitance. In addition, **the storage capacitor Css restores the charge recovered from the panel capacitance** [i.e., referring to the capacitive load of PDP 10]. First, the storage capacitor Css is connected to the voltage source Vss through a first switch SW1 and is charged with more than half of the minimum sustain voltage. Next, the charge in the storage capacitor Css is transferred into the intermediate capacitor Cs through the resonance inductor L following the charging switch SW2 in the charging means 120 being turned on. By LC resonance of the resonance inductor L and the intermediate capacitor Cs, the intermediate capacitor Cs is charged to the voltage about twice as much as the voltage source Vss. Then, by turning on the switching means SW4, the intermediate capacitor Cs is connected to the panel and supplies the charge to the panel capacitance. As the panel capacitance is charged, the voltage across the panel capacitance increases and, consequently, the sustain discharge is fired. Using the driving circuit of the invention, once discharge has begun, the supply of charge is limited by the charge stored in the intermediate capacitor Cs. Accordingly, the excessive flow of discharge current is limited, thereby, increasing the energy efficiency. [(Emphasis added.)]
>
> Besides, for operation of the circuit during the decrease of the voltage across the panel, the charge recovery means 130 and the clamping means 150 should be further included. The operation of the circuit during the decrease of the voltage across the panel is described below. **After the sustain discharge is completed, by turning on the charge recovering switch SW3 in the charge recovery means 130, the charge stored in the panel capacitance is recovered to the storage capacitor Css through the resonance inductor L**. At this time, the clamping switch SW5 included in the clamping means 150 is turned on and the voltage of the side of the panel is grounded. [(Emphasis added.)]

The foregoing quoted text relating to Fig. 3 (of Kim) clearly indicates **(1)** that the resonance inductor (L) is used to charge the storage capacitor (Css) and to charge the intermediate capacitor (Cs) and **(2)** then after the sustain discharge is completed, energy of the capacitive load of PDP (10) is "**recovered to the storage capacitor Css through the resonance inductor L**" as expressly stated above. (Emphasis added.)

Thus, the energy of the capacitive load of PDP (10) (of Kim) is stored and retained in the storage capacitor (Css) rather than in coil (L). Concurring with the same (and contrary to the assertion/conclusion of the Office Action), the first paragraph of the above-quoted text (of Kim) also emphasizes that "**the storage capacitor Css restores the charge recovered from the panel capacitance**." (Emphasis added.) As such, the coil (L) (of Kim) does not store and retain the "charge recovered from the panel capacitance" of PDP (10) as asserted/concluded in the Office Action.

Even more specifically, the above-quoted text relating to Fig. 3 (of Kim) indicates that the storage capacitor (Css) is charged by voltage source (Vss) by turning on switch 1 (SW1). Thereafter, switch 2 (SW2) of charging part (120) is turned ON to direct the energy of storage capacitor (Css) through the unidirectional diode (of charging means (120)) and through resonance inductor (L) to charge intermediate capacitor (Cs). Then, after PDP (10) has completed the sustain discharge, the PDP (10) capacitance energy is recovered via recovery means (130) by turning ON switch 3 (SW3) in order to transfer energy from PDP (10) through switch 4 (SW4), through resonance inductor (L), through recovery means (130) via the unidirectional diode thereof and via switch 3 (SW3) and ultimately into storage capacitor (Css).

So, with regard to the assertion/conclusion in the Office action that the capacitive load of PDP (10) (of Kim) is stored (and retained) in the coil circuit (L) thereof, the actual disclosure (of Kim) directly contradicts that assertion/conclusion because the PDP 10 capacitive load energy (of Kim) is stored in the storage capacitor (Css) rather than being stored in the coil circuit (L).

Thus, Applicants respectfully submit that Kim does not disclose or teach the feature that the "energy[3] is stored in the coil circuit" and "retained" therein as recited in the rejected claims. (Emphasis added.) Therefore, Kim does not disclose or teach each and every feature of the rejected claims and does not anticipate the rejected claims.

Moreover, claim **31** is amended to incorporate the language of claim **35** (now cancelled). Specifically, as described in amended claim **31**, energy to be stored in the coil flows from the capacitive load of the panel through a kind of electrodes (X, Y or address) and the energy stored in the coil is supplied to the capacitive load of the panel through the same kind of electrodes. According to amended claim **31** (and claims **32-34** ultimately depending therefrom), an energy recovery circuit for capacitive loads between address electrodes and scan electrodes can be

---

3 The "energy" refers to that associated with the discharge of the capacitive load of the display panel.

realized wherein capacitive load energy is stored in the coil and recovered from the coil. These additional feature(s) are not taught or disclosed by Kim as claimed.

For at least the foregoing reasons, Applicants respectfully submit that claims **31-34** are patentably distinguished over the disclosure of Kim. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims **31-34** as being anticipated by Kim under 35 U.S.C. §102(e).

IV. REJECTION UNDER 35 U.S.C. §102(b)

Claims **31-33**, **35**, **36** and **38-39** are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Pub. No. 2001/0029102 of Okamura et al. (hereinafter "Okamura") for the reasons noted at pages 4-6 of the Office Action. In view of cancelling claims **35-36**, Applicants respectfully traverse this rejection for the reasons noted below with reference to claims **31-33** and **38-39**.

In particular, the Office Action asserts that:

> With respect to [rejected] claim 31[,] Okamura discloses a plasma display apparatus comprising a plasma display panel (such as 608 in FIG. 1) having at least a pair of electrodes (605-1 and 606-1) making up a capacitive load (Cp in FIG. 4) and causing discharge to occur between the pair of electrodes; and **a capacitive load drive circuit (100 in FIG. 3)** connected to a respective electrode of the pair of electrodes and driving the capacitive load, wherein the capacitive load drive circuit has **a coil circuit L** connected between an output terminal (a **node connecting L, Cs and SW4**) to be connected to said respective electrodes (via switch SW4). (Office Action at page 4, paragraph no. 6, lines 11-17; emphasis added.)

Applicants respectfully submit that the Office Action erroneously cites features of Fig. 3 (of Kim) as belonging to the disclosure of Okamura when such is , in fact, not the case. For example, the "capacitive load drive circuit (100 in FIG. 3)," and the "node connecting L, Cs and SW4" are not described in Okamura.[4] Contrary to the above-quoted assertion in the Office Action, no such structures (labeled as 100, L, Cs, SW4, etc.) are disclosed by Okamura.

Accordingly, Applicants submit that the basis for the anticipation rejection under 35 U.S.C. §102(b) relying on Okamura is fatally flawed at least because the assertion (at page 4 of the Office Action) relating to the disclosure of Okamura is factually incorrect.

---

[4] Those labeled components relate to Kim as already noted herein, *supra*.

An anticipation rejection requires that each and every element of the claimed invention must be disclosed in the single cited reference. Here, Okamura fails to disclose the requisite "capacitive load drive circuit" because the citation of such drive circuit (i.e., circuit 100 in FIG. 3) is not found in Okamura. Likewise, there is no disclosure of a "node connecting L, Cs and SW4" in Okamura. Also, there is no switch (SW4) disclosed in Okamura.

Moreover, according to amended claim **31** (and claims **32-34** and **38-39** ultimately depending therefrom), energy to be stored in the coil flows from the capacitive load of the panel through a kind of electrodes (X, Y or address) and the energy stored in the coil is supplied to the capacitive load of the panel through the same kind of electrodes. The features recited in claims **31-34** and **38-39** are not disclosed or taught in Okamura.

For at least the foregoing reasons, Applicants respectfully submit that Okamura does not teach or disclose each and every element/feature of the rejected claims. Therefore, Applicants respectfully submit that claims **31-33** and **38-39** are patentably distinguished over Okamura.

Applicants, therefore, respectfully request reconsideration and withdrawal of the rejection of claims **31-33** and **38-39** as being anticipated by Okamura under 35 U.S.C. §102(b).

V. SECOND REJECTION UNDER 35 U.S.C. §102(e)

Claim **37** is rejected as being anticipated by U.S. Pat. No. 6,922,180 to Iwami, et al. (hereinafter "Iwami") for the reasons noted at pages 6-7 of the Office Action. Applicants respectfully traverse this rejection for the reasons noted below.

In particular, Applicants respectfully disagree with the assertion (in the Office Action in the sentence bridging pages 6-7 thereof):

> that when the energy stored in the capacitive load consisting of the address electrodes and the scan electrodes [of Iwami] is discharged, the **energy is stored in the coil circuit** and at the same time, the **energy** is **retained in the coil circuit** while the current flowing through the coil circuit is increasing . . .

made with regard to Figs. 2-3 (of Iwami) described in Iwami (at paragraphs 17-38 at cols. 3-6 thereof). (Emphasis added.)

For the Examiner's convenience, Fig. 2 (of Iwami) is reproduced below.

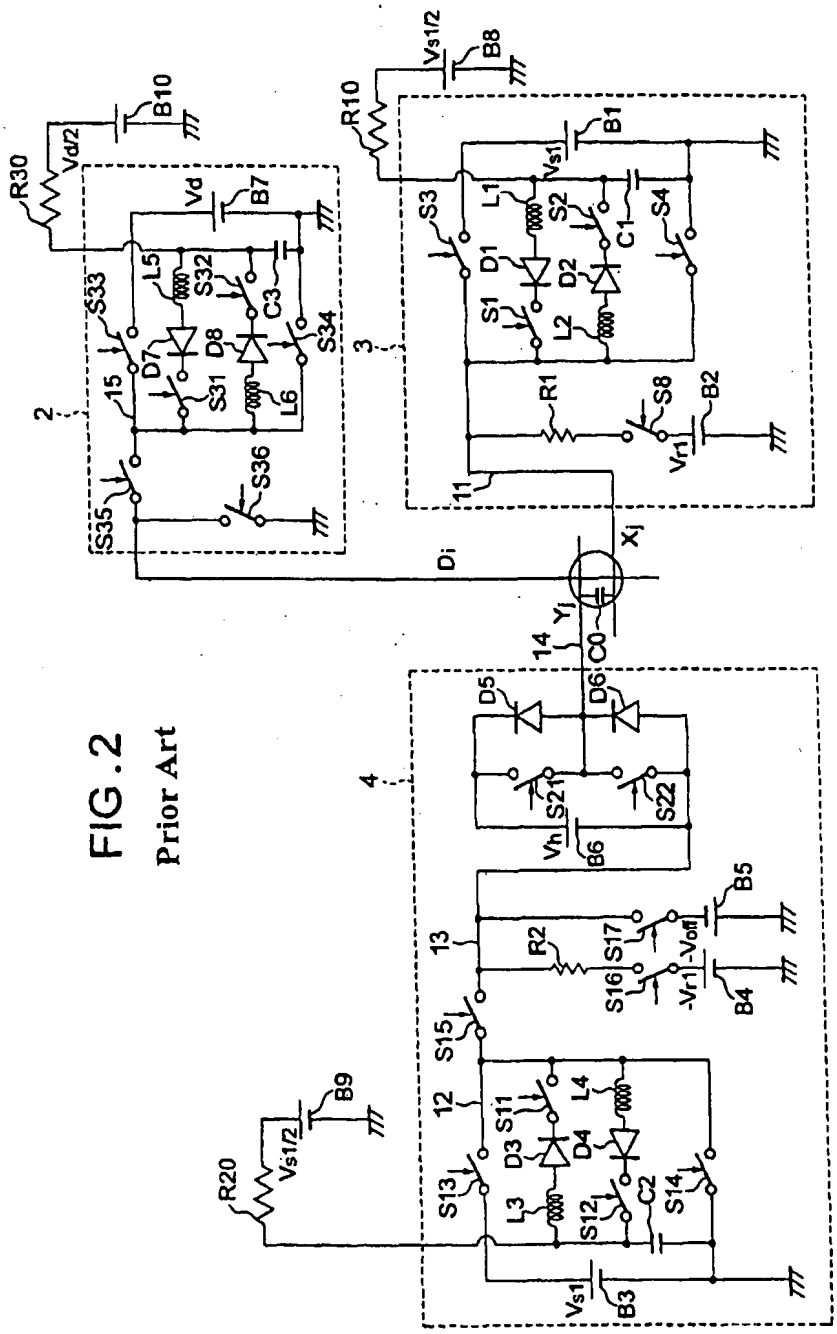


FIG. 2
Prior Art

In response to the above-quoted assertion in the Office Action (with regard to Fig. 2 of Iwami), Applicants direct the Examiner's to the language recited (at col. 5, lines 46-48, of Iwami) reciting in relevant part:

> whereupon a current flows into the capacitor **C1** from the electrode X_j through the coil **L2**, the diode **D2** and a switching element **S2** due to the charges accumulated in the capacitor **C0**. [(Emphasis added.)]

Note that the capacitance load contained in the capacitor (C0) is that associated with the address electrodes (A) and the scan electrodes (X and Y) of Iwami. When the energy of the capacitor (C0) is to be recovered, Iwami clearly explains that the current flows into the capacitor (C1) via coil (L2), diode (D2) and switch (S2) as indicated in the above-quoted language (i.e., "whereupon a current flows into the capacitor **C1** from the electrode X_j through the coil **L2**, the diode **D2** and a switching element **S2** due to the charges accumulated in the capacitor **C0**"; emphasis added.) Thus, the orientation and operation of coil (L2), diode (D2) and switch (S2) facilitate the transfer of energy into capacitor (C1) from capacitor (C0).

Also, in the reverse direction, the orientation of coil (L1), diode (D1) and switch (S1) facilitate transfer of energy into capacitor (C0) from capacitor (C1). Iwami corroborates the same by the language reproduced below (in relevant part):

> whereupon a current reaches the electrode X_j through coil L1, the diode D1, and the switching element S1 due to charges accumulated in capacitor C1, and the current flows into the capacitor C0, whereby the capacitor C0 is charged. [(Iwami at col. 5, lines 32-36; emphasis added.)]

Similarly, the orientation and operation of coil (L4), diode (D4) and switch (S12) facilitate transfer of energy into capacitor (C2) from capacitor (C0):

> Subsequently, . . . the switching element S12 is switched ON, and . . . Consequently, a current flows into capacitor C2 from electrode Y_j through . . . the coil L4, the diode D4, and the switching element S12 due to charges accumulated in the capacitor C0. [(Iwami at col. 6, lines 11-17; emphasis added.)]

Also, in the reverse direction, the orientation of coil (L3), diode (D3) and switch (S11) facilitate transfer of energy into capacitor (C0) from capacitor (C2):

> However, . . . when the switching element S11 is switched ON, a current reaches the electrode Y_j through coil L3, the diode D3, the switching element S11, . . . due to charges accumulated in the capacitor C2, and current flows into the capacitor C0, whereby capacitor C0 is charged. [(Iwami from col. 5, line 63 to col. 6, line 2; emphasis added.)]

Also, likewise, the orientation and operation of coil (L6), diode (D8) and switch (S32) facilitate transfer of energy into capacitor (C3) from capacitor (C0). And, in the reverse direction, the orientation of coil (L5), diode (D7) and switch (S31) facilitate transfer of energy into capacitor (C0) from capacitor (C3).

When energy is transferred out of capacitor (C0), that energy is not stored and retained in the coils (L1), (L2), (L3), (L4), (l5) or (L6) of Fig. 2 (of Iwami). Accordingly, it is absolutely clear

that energy is not stored and retained in the coils of Fig. 2 (of Iwami). Rather, that energy it is stored and retained in capacitors (C1), (C2) or (C3) of Fig. 2 (of Iwami). The coils (of Iwami) aid in the transfer of energy either into (C0) or out of/from (C0).

Moreover, Applicants respectfully direct the Examiner's attention to further relevant text (of Iwami) reproduced below:

> As has been described, according to the present invention it is **possible to charge the power collecting capacitive element**, which is included in the resonance driver in a light-emitting display panel driving apparatus having a capacitive load, to a predetermined potential almost concurrently with the power-up of the apparatus through excitation by the resonance driver. Hence, it is possible to drastically **shorten a time required to display an image by shifting** to the normal display **driving sequence** since the power-up of the driving apparatus. [(Iwami at col. 11, lines 32-41; emphasis added.)]

The foregoing quotation relates to charging the power collecting capacitive elements (C1), (C2), and (C3) (of Iwami) so as to "shorten a time required to display an image by shifting . . . the driving sequence . . . ." (Emphasis added.) Thus, the focus of Iwami is not directed to storing and retaining energy discharged from capacitor (C0) into coils (L1), (L2), (L3), (L4), (L5) or (L6) thereof – but rather to "shorten a time required to display an image" as noted above. Accordingly, Iwami does not teach, or disclose storing and retaining energy in any of the coils (L1), (L2), (L3), (L4), (L5) or (L6) of cited Fig. 2 (of Iwami).

The foregoing remarks and deficiencies of the disclosure of Iwami also apply to Figs. 5-6 thereof because Iwami indicates that Fig. 5 (of Iwami) is essentially the same as Fig. 2 (of Iwami) in view of the statement:

> The **circuitry shown in FIG. 5 omits** the charge circuits (power sources B8 through B10 and the resistors R10, R20, and R30) for the **power collecting capacitors (C1 through C3)** in their respective resonance drivers activated upon power-up **from the circuit arrangement of FIG. 2**, and **because the other arrangements are the same**, an explanation of each portion in the circuit is omitted. [(Iwami at col. 8, lines 23-30; emphasis added.)]

Even with regard to Fig. 5 (of Iwami), the capacitors (C1), (C2), and (C3) thereof are referred to as the "power collecting capacitors (C1 through C3)" in agreement with the point that the coils (L1), (L2), (L3), (L4), (L5) or (L6) (of Iwami) are not used to store and retain energy as discussed above. (Emphasis added.)

For at least these reasons, Applicants respectfully submit that Iwami fails to disclose or teach each and every element recited in Applicants' rejected claims – for example, the feature(s)

that "the energy is stored in the coil circuit" and "retained" therein as recited in rejected claim **37**. Accordingly, Applicants respectfully submit that claim **37** is patentably distinguished over the disclosure of Iwami.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim **37** as being anticipated under 35 U.S.C. §102(e) over Iwami.

VI. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for allowance and a Notice of Allowance is earnestly solicited.

If any issues remain outstanding, the Examiner is respectfully requested to contact the undersigned attorney so that any remaining issues may be promptly resolved.

No fees are believed to be due for the filing of this paper. However, if any fees are due or any overpayment of fees has been made, please charge or credit the same to our Deposit Account No. 19-3935, as necessary.

Respectfully submitted,

STAAS & HALSEY LLP

Date: ***April 30, 2007***

By: _____

Ajay Pathak
Registration No. 38,266

1201 New York Avenue, NW, 7th Floor
Washington, D.C. 20005
Telephone: (202) 454-1594 (direct)
Telephone: (202) 434-1500 (main)
Facsimile: (202) 434-1501